Audio Codec Systems

GET IN TOUCH!

AVT Audio Video Technologies

Content

Audio Codecs in general from page 5
- What are Audio Codecs?
- What do the systems offer?

Systems from page 6
- MAGIC DC7 XIP & XIP RM Audio Codecs
- MAGIC AC1 XIP & XIP RM Audio Codecs

Control Software from page 10
- MAGIC DC7 / AC1 XIP PC Software
- Multi Codec Control via LAN

Hardware Options from page 11
- MAGIC Keypad Basic
- Handset / Headset
- 19" Dual Mounting Kit
- Portable Case
- Take-Away-Kit
- MAGIC Battery Pack
- LAN2 Adapter

Optional Audio Codecs from page 12
- Standard System
- Upgrades for MAGIC AC1 XIP / MAGIC AC1 XIP RM

Software Options from page 13
- MAGIC Mixer Tool Software Plug-In
- AES / EBU Licence
- ISDN Backup
- SNMP
- ISDN Monitoring
- Remote Control Software
- Software Upgrade Kit for MAGIC AC1 XIP

Applications from page 16
- Audio distribution with MAGIC DC7 XIP / AC1 XIP
- Reporting via ISDN with MAGIC AC1 XIP
- MAGIC DC7 XIP / AC1 XIP with telephone handset
- MAGIC AC1 XIP for the OB Van
- IP Audio transmission with automatic ISDN Backup
- ISDN Backup via external alarm signal

Multi Channel System from page 20
- MAGIC Audio Contribution System

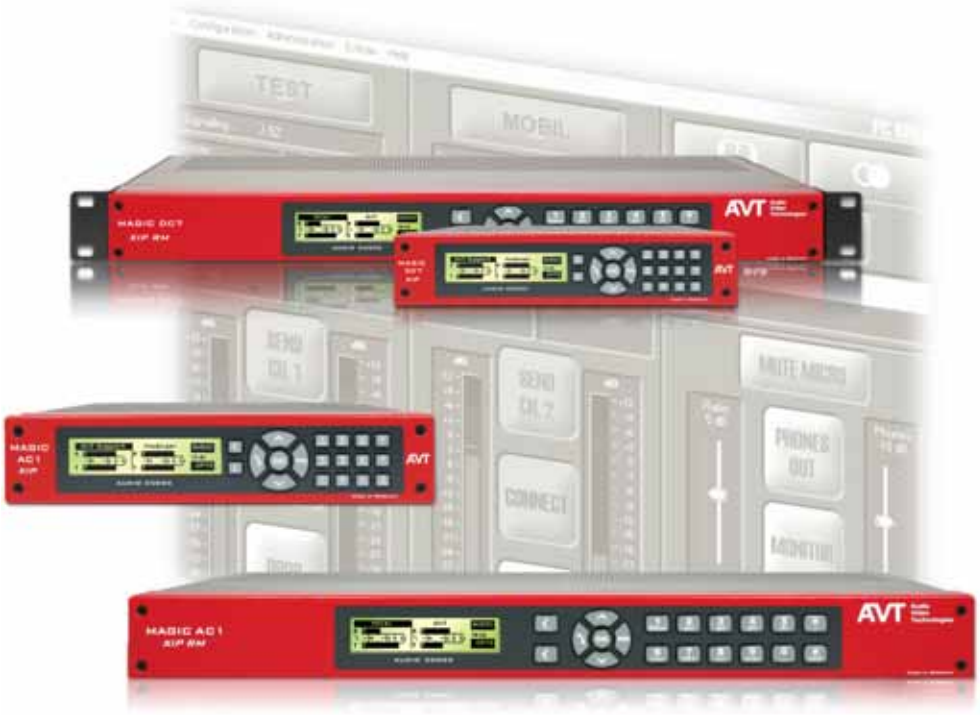
Technical Data from page 22

Ordering Information from page 24

© December 2013 - AVT Audio Video Technologies GmbH - Subject to technical changes

AVT Audio Video Technologies GmbH
Nordostpark 12, 90411 Nürnberg, Germany
Phone: +49 911 5271-0 Fax: +49 911 5271-100 Email: info@avt-nbg.de
www.avt-nbg.de
/www.avt-nbg.de/shop

Audio Codecs in general



What are Audio Codecs?

Audio Codecs are used for Audio transmissions over different networks like ISDN (dial-up connections and ISDN leased lines), LAN, E1 and X.21.

Dial-up connections are especially used for temporary connections like reporting applications but also for studio programme contribution. Furthermore, ISDN or LAN Audio Codecs are needed as back-up solutions for the distribution of the Audio signals to terrestrial transmitters.

In comparison to an analogue Audio transfer, Audio Codecs offer a much higher transmission quality, because there are less disturbing signals due to digital transmission channels. When digital transmission channels are available, the powerful Audio coding algorithms, which require no further error protection, can be used. Standardised multiplexing procedures offer an interworking of units from different suppliers. In addition to the Audio signals, data signals can be transmitted.

Due to the processing power of digital signal processing components (DSPs) small and compact units can be realised. Besides, there is no cooling necessary (no fan is required).

What do the systems offer?

- Speech coding
- Interworking with all telephone subscribers
- High-quality Audio coding according to PCM, ISO / MPEG Layer 2 / 3, apt-X and ACC-LD
- Use of standardised multiplexing procedures
- Analogue and AES / EBU Audio interfaces
- Headset interface for reporting
- Integrated Software Mixer
- Data transmission
- ISDN Monitoring functionality
- Remote Control functionality
- Easy operation and control
- Operation without fan
- 19" mounting

MAGIC DC7 XIP & XIP RM Audio Codecs

General

The MAGIC DC7 XIP systems incorporate a LAN interface, an ISDN BRI interface and a X.21 interface. The coding algorithms G.711 (3.1-kHz) and G.722 (7-kHz) are implemented. For the transmission of the high quality signals the ISDN interface, the X.21 or the LAN interface can be used.

The compact MAGIC DC7 XIP Audio Codec (½ x 19", 1 U) is a powerful product for mobile use as well as for studio applications. In comparison to MAGIC DC7 XIP, MAGIC DC7 XIP RM has a 19" design and provides an integrated power supply.

Functionality

ISDN operating mode

Activating the ISDN interface, the MAGIC DC7 XIP Audio Codecs can establish connections with two different destinations. Depending on the capabilities of the remote side, which are defined by the Service Indicator ISDN Data or ISDN Speech, each Audio Codec works automatically in the 3.1-kHz or in the 7-kHz mode. If there is an incoming call, the system automatically selects the correct 3.1-kHz or 7-kHz mode. In the 7-kHz mode every Audio Codec can transfer a data signal in addition to the Audio signal.

X.21 operating mode

In the X.21 operating mode the MAGIC DC7 XIP provides a coded Audio signal with data rates of 64-kbit/s and 128-kbit/s. After selecting the Audio algorithm, the unit measures the X.21 clock and adapts the Audio Codec's data rate to the X.21 line clock. Together with the transmission of Audio signals, a J.52 data transmission can be realised.

IP operating mode

Two IP transmission modes are available:

- Leased Line Mode with RTP
- Dial-up Mode with SIP according to the new EBU Audio over IP standard N/ACIP TECH3326[1]

ISDN/LAN (SIP) Auto Mode

With the ISDN/LAN (SIP) Auto Mode the system decides on the basis of the type of the incoming call which network interface shall be active- ISDN or LAN/SIP. The user in the control room can employ the ISDN/LAN (SIP) configuration for all incoming calls. The MAGIC DC7 XIP switches automatically to the right network interface.

Interworking with Audio Codecs

In both the analogue POTS mode and the ISDN telephone mode (ISDN Speech Indicator) the unit can communicate with all analogue, ISDN and mobile telephones. In the ISDN 7-kHz mode (ISDN Data Indicator) Audio signals with 7-kHz quality can be transmitted. Two different synchronisation procedures are used:

- ITU-T J.52 for 7-kHz Audio & data transmission: Using the ITU-T J.52 Recommendation a data signal can be transferred in addition to the 7-kHz Audio signal. In this mode the Audio signal is encoded at 48-kbit/s or at 56-kbit/s. Data signals of up to 14.4-kbit/s can be transmitted.
- SRT for 7-kHz Audio transmissions: If the SRT (Statistical Recovered Timing) procedure is used, only Audio signals can be transmitted. In this case the Audio signal is encoded at 64-kbit/s.

Each of the two Audio Codecs can use either J.52 or SRT as its individual synchronisation mode.

HD

In SIP mode full compatibility to VoIP phones is provided. If the remote IP phone also supports HD telephony with G.722, the system will be switched automatically in 7-kHz mode and offers as a result high quality speech.

[1]Further details can be found under http://www.ebu-acip.org

Operation and Control

MAGIC DC7 XIP can be controlled via the integrated front keypad and the graphical display. The intuitive user interface permits a simple operation and control. Calling numbers as well as system settings can be stored in the integrated telephone book. In the ISDN operating mode the far system can also be configured and controlled remotely over ISDN by using the optional Remote Control PC Software.

Control interface

The MAGIC DC7 XIP Audio Codec can be configured and controlled by a Windows PC software (included in delivery), too. Just the RS232 Control interface, the LAN interface or the external MAGIC Keypad Basic (optional) has to be used.

TTL/Relay interface

The programmable GPIO contacts for control consist of six TTL inputs/outputs and two relay outputs.

SNMP

Optionally, the systems support SNMP V2c for the integration into a network management system.

Analogue and digital Audio interfaces

MAGIC DC7 XIP provides analogue and digital (AES3) Audio interfaces on the rear side of the unit. The digital AES3 interface supports separate sample rate converters for the synchronisation of the Audio clock to the ISDN line clock for both input and output. The analogue input and output levels can be configured by software.

Headset interface

The headset interface of the MAGIC DC7 XIP incorporates a pre-amplifier and limiter for the microphone signal with auto ducking. The signals for the earphone can be tuned individually. With the optional Mixer Tool Software the unit offers all reporting functions.

Data interfaces

MAGIC DC7 XIP features a serial data interfaces which can be configured as RS232 or as RS485 interfaces. The maximum transmission data rate is 14.4 kbit/s.

Power supply interface

MAGIC DC7 XIP

For MAGIC DC7 XIP a +12V DC is required. A plug in power supply is included in the delivery. Optionally, an external battery pack is available as well.

MAGIC DC7 XIP RM

MAGIC DC7 XIP RM has an integrated power supply.

LAN2 Adapter

For MAGIC DC7 XIP RM the optional LAN2 adapter is available (see Hardware Options).

MAGIC AC1 XIP & XIP RM Audio Codecs

General

The MAGIC AC1 XIP systems incorporate an ISDN BRI interface, a X.21 interface and a LAN interface. The coding algorithms G.711 (3.1- kHz), G.722 (7-kHz), ISO / MPEG Layer 2 & 3 (15-kHz), AAC-LD (15-kHz), standard apt-X and enhanced apt-X as well as PCM are supported. For the transmission of the high quality signals, the ISDN[1] interface, the X.21[1] interface or the LAN interface can be taken.
The compact MAGIC AC1 XIP Audio Codec (½ x 19“, 1 U) is a powerful product for mobile operations as well as for space-saving studio applications. In comparison to MAGIC AC1 XIP, MAGIC AC1 XIP RM has a 19" design and provides an integrated power supply.

Functionality

ISDN operating mode

After an ISDN connection is established, the MAGIC AC1 XIP Audio Codec automatically determines with the ITU-T J.52 inband signalling, whether or not the called party can operate in 7-kHz or ISO / MPEG Layer 2 mode. If all modes are available, the dial-up side chooses the right coding algorithm. Otherwise the unit operates in the conventional 3.1-kHz mode. MAGIC AC1 XIP can use up to 2 ISDN B channels with a maximum data rate of 128-bit / s for the transmission of a high quality Audio signal. The required inverse multiplexing procedure is also defined in the ITU-T J.52 standard. The inverse multiplexing procedure guarantees a minimum transmission delay. Should a B channel drop or the routing of the B channels in the transmission network changes, the unit still can operate without interruption by using the remaining B channel.
A remarkable feature is the transfer of a command signal with 3.1-kHz or 7-kHz bandwidth in parallel to the transmission of the high quality Audio signal. Additionally, two independent data channels can be used.

X.21 operating mode

In the X.21 operating mode the MAGIC AC1 XIP provides a coded Audio signal with data rates from 8-kbit / s to 384-kbit / s. All ISO / MPEG Layer 2 / 3, AAC-LD and apt-X data rates are provided.
After the Audio algorithm is selected, the unit measures the X.21 clock and adapts the Audio Codec's data rate to the X.21 line clock. PAD data can be transmitted together with Audio data.

IP operating mode

Two IP transmission modes are available:

- Leased Line Mode with RTP
- Dial-up Mode with SIP according to the new EBU Audio over IP standard N / ACIP TECH3326[2]

ISDN/LAN (SIP) Auto Mode

With the ISDN / LAN (SIP) Auto Mode the system decides on the basis of the type of the incoming call which network interface shall be active- ISDN or LAN (SIP). The user in the control room can use the ISDN / LAN (SIP) configuration for all incoming calls. The MAGIC AC1 XIP switches automatically to the right network interface.

Automatic ISDN Backup

Optionally, an ISDN Backup function is available. It establishes a Backup connection via ISDN if the main connection via X.21 or IP fails. For the Backup connection another coding procedure can be defined as for the main one.

Interworking with Audio Codecs

Due to the implemented ADS (AutoDynamicSync) functionality, the MAGIC AC1 XIP systems detect the parameters of the calling or the called codec for 1B and 2B ISDN connections and adapt them automatically. Therefore, previous manual adjustments are no longer required. In the LAN (SIP) dial-up mode the compatibility between Audio Codecs from other manufacturers is guaranteed due to the new EBU standard for Audio over IP. So ADS supports codecs like from ORBAN (Musictaxi), CCS, TELOS as well as all 7-kHz and J.52 Codecs.

HD

In SIP mode full compatibility to VoIP phones is provided. If the remote IP phone also supports HD telephony with G.722, the system will be switched automatically in 7-kHz mode and offers as a result high quality speech.

[1] If the ISDN or the X.21 interface is selected, the PCM coding procedure cannot be used due to the required bit rate.

[2] Further details can be found under http://www.ebu-acip.org

Operation and Control

MAGIC AC1 XIP can be controlled with the integrated front keypad and the graphical display. The intuitive user interface permits simple operation and control. Calling numbers as well as system settings can be stored in the integrated telephone book. In the ISDN operating mode, the far system can also be configured and controlled remotely over ISDN with the help of the optional Remote Control PC Software.

Control interface

The MAGIC AC1 XIP Audio Codec can also be configured and regulated by a Windows PC software (included in the delivery) using the RS232 Control interface or the LAN interface or via the external MAGIC Keypad Basic (optional).

TTL/Relay interface

The programmable GPIO contacts for control consist of six TTL inputs/outputs and two relay outputs.

SNMP

Optionally, the systems support SNMP V2c for the integration into a network management system.

Analogue and digital Audio interfaces

MAGIC AC1 XIP provides analogue and digital (AES3) Audio interfaces on the rear side of the unit. The digital AES3 interface supports separate sample rate converters for the synchronisation of the Audio clock to the ISDN line clock for both input and output. The analogue input and output levels can be configured by the software.

Headset interface

The headset interface of the MAGIC AC1 XIP incorporates a pre-amplifier and limiter for the microphone signal with auto ducking. The signals for the earphone can be individually configured. With the optional Mixer Tool Software the unit provides all reporting functions.

Data interfaces

MAGIC AC1 XIP features a serial data interface which can be configured as RS232 or as RS485 interface. In the 1 B channel mode the maximum transmission data rate is 14.4-kbit/s. Due to the MPEG Audio coding data rates J.52 data channels with low transmission delay at data rates of 12.8-kbit/s and 28.8-kbit/s can be configured. Besides, the Ancillary Data channel in the coded MPEG, AAC-LD or the apt-X Audio signal take place.

Power supply interface

MAGIC AC1 XIP

For MAGIC AC1 XIP +12V DC is required. A plug in power supply is included in the delivery. Optionally, a battery pack is available.

MAGIC AC1 XIP RM

MAGIC AC1 XIP RM has an integrated power supply with appliance type mains cable.

LAN2 Adapter

For MAGIC DC7 XIP RM the optional LAN2 adapter is available (see Hardware Options).

PC Control Software

MAGIC DC7/AC1 XIP PC Software

With the MAGIC DC7 XIP / AC1 XIP PC Software that is included in delivery the Audio Codecs can be operated easily by a PC. All functions of MAGIC DC7 XIP and MAGIC AC1 XIP are available and can be controlled with that software. The user interface visualises both caller lines with separate level meter. For each caller line exists a call button for establishing a connection and a drop button for dropping a connection. The telephone book can be opened by a single click on the phone book button and stored phone numbers as well as transmission modes. Of course, there is an input field for manual dialling, too.

Special transmission modes such as "Transmit 15-kHz" and "Receive 7-kHz" can be configured very easily and stored in the system automatically.

Additional operating elements such as a redialling button, a mute button for the microphone as well as controllers to adjust the Audio mixer are integrated.

The system monitor affords a detailed overview of the system status.

The software can be controlled via LAN.

Multi Codec Control via LAN

Alternatively, for a central configuration and monitoring of all installed MAGIC Audio Codecs the MAGIC DC7 / AC1 LAN Software which is also included in the delivery can be used. The software allows simultaneous monitoring, configuration and control of up to 20 Audio Codecs within a network. Individual systems can be dynamically selected for Audio transmissions. System errors are automatically reported and filed. It is used for the MAGIC DC7 XIP, MAGIC DC7 XIP RM, MAGIC AC1 XIP and MAGIC AC1 XIP RM systems.

Hardware Options

MAGIC Keypad Basic

There is an external MAGIC Keypad Basic for operating without a PC. The user interface is similar to the 15-kHz ISDN Telephone. The MAGIC Keypad Basic supports all functions of the MAGIC Audio Codecs and is connected with the RS232 Control interface of the Codec.

Handset/Headset

With the Headset interface, a handset or headset can be linked to the MAGIC Audio Codecs, e.g. for Pretalk. The switching between the Audio interface and the handset / headset can be made by pressing a single key on the front keypad of the system (telephone button).

19" Dual Mounting Kit

A 1U x 19" mounting kit for the installation of two MAGIC DC7 XIP / AC1 XIP systems next to each other is optionally available.

Portable Case

Optionally, a rugged hard-top case is available (colour: black, only for MAGIC DC7 / AC1 XIP).

Take-Away-Kit

The Take-Away-Kit for MAGIC DC7 XIP and MAGIC AC1 XIP is a comfortable carry handle, that can be mounted on the Codecs. It has rubber feet and provides an optimal view to the display when the system is used as a tabletop device.

MAGIC Battery Pack

For MAGIC DC7 XIP and MAGIC AC1 XIP, the external MAGIC Battery Pack is available. The lithium battery can be mounted on the bottom side of the tools and forms a compact unit together with the system, which is perfect for mobile use because of its light weight. With a size of 193 x 24 x 135 mm and a battery life of 2 hours. The battery offers an uninterrupted operation even during a power blackout. If the battery pack is connected to the external power supply of the system, the system is supplied with power. At the same time the battery will be charged. The unit also has a charging control which is signalled by LEDs

Rear View MAGIC AC1 XIP with MAGIC Battery Pack

LAN2 Adapter

The LAN2 adapter can be connected to the Extension Bus interface of MAGIC DC7 XIP RM und MAGIC AC1 XIP RM. With the second LAN interface control of the Audio Codec as well as alarm notification via SNMP is possible, but not the transmission of coded audio data. The main advantage is a separation of the IP audio transmission network and the management network. All functions of this interface can be comfortably configured using the PC software.

Optional Audio Codecs

Upgrades for MAGIC AC1 XIP/MAGIC AC1 XIP RM

Standard System

The MAGIC AC1 XIP Systems are delivered with the following coding algorithms by default:

- G.711
  - Bit rate: 64-kbit/s
  - Bandwidth: 300-Hz... 3,4-kHz
  - Delay: < 10 ms
- G.722
  - Bit rate: 64-kbit/s
  - Bandwidth: 50-Hz... 7-kHz
  - Delay: < 10 ms
- ISO/MPEG Layer 2[1]
  - features see below
- PCM 16, PCM 20, PCM 24
  - Bit rate: 1024-kbit/s... 2304-kbit/s
  - Bandwidth: 20-Hz... 20-kHz
  - Delay: < 10 ms
  - lossless coding
  - only for IP networks

For compatibility reasons or if required for the application, further algorithms can be licensed for each system:

ISO/MPEG Layer 2

15-kHz Audio Codec with a delay of approx. 150 ms. ISO/MPEG Layer 2 is available in almost every Audio Codec and therefore, it provides the highest compatibility for ISDN connections.

In the new Audio over IP standard N/ACIP TECH3326 ISO/MPEG Layer 2 is mandatory. Interoperability for IP transmissions is guaranteed thanks to this standard.

[1]If required, instead of Layer 2 the Layer 3 algorithm can also be enabled in the basic system. Please note, that a system without ISO/MPEG Layer 2 is no longer compatible to N/ACIP TECH3326, since ISO/MPEG Layer 2 is rated as mandatory.

ISO/MPEG Layer 3

15-kHz Audio Codec with a delay of approx. 250 ms. ISO/MPEG Layer 3 is more efficient than ISO/MPEG Layer 2 and enables a better Audio quality at low bit rates. The algorithm is also implemented in many Audio Codecs.

In the new Audio over IP standard N/ACIP TECH3326 ISO/MPEG Layer 3 is optional. Interoperability for IP connections is secured because of that standard.

AAC-LD

15-kHz Audio Codec with a low delay of ca. 50 ms. The Codec permits a very good quality at low bit rates, but it is not very widely-used in the available Audio Codecs. Furthermore, interoperability for ISDN connections between systems from different manufacturers is not assured.

In the new Audio over IP standard N/ACIP TECH3326 AAC-LD is rated as recommended. Interoperability for IP connections is guaranteed due to the standard.

Standard apt-X

15-kHz Audio Codec with a very low delay of less than 10 ms. However, the Codec requires 128-kbit/s for a high-quality Mono Audio signal and 256-kbit/s for a Stereo signal. Via ISDN only a Mono signal with 15-kHz bandwidth can be transmitted. Moreover, interoperability for ISDN connections between systems from different manufacturers could not be promised.

In the new Audio over IP standard N/ACIP TECH3326 apt-X is rated as optional. Interoperability for IP connections is guaranteed due to the standard.

The licences are issued per channel per Encoder or Decoder, respectively.

Enhanced apt-X

Enhanced apt-X are identical parameters as standard apt-X, but they have an improved Audio quality because of a higher dynamic and less delay.

The licences are issued per channel per Encoder or Decoder, respectively.

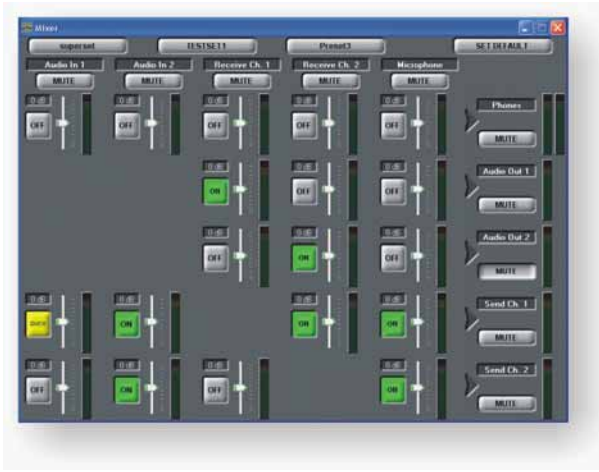
Software Options

MAGIC Mixer Tool Software Plug-In

he optional mixing functionality for MAGIC DC7 XIP, MAGIC AC1 XIP, MAGIC DC7 XIP RM and MAGIC AC1 XIP RM provides a flexible mixing of all Audio input signals to the headset signals, the Audio output signals and the transmit signals. A monitoring function for all Audio signals is also available.

The optional plug-in Mixer Tool extends the MAGIC Audio Codecs to a flexible software mixing console. That is why the system could be act like a compact reporting product. The mixer can be controlled via the integrated keypad and display as well as with the PC software.

The Mixer Tool Plug-In is **only** available in combination with the Software Upgrade Kit (ID: 430359).



AES/EBU Licence

By default, only the analogue Audio interface of the system took place. With the optional AES/EBU Licence the digital input/output of the system can be activated.

SNMP

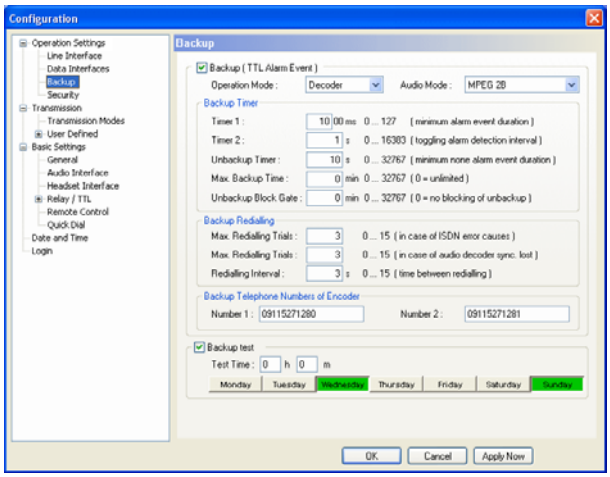
Optionally, for the integration into a network management system SNMP V2 is available for all XIP systems.
SNMP is **only** available in combination with the Software Upgrade Kit (ID: 430359).

ISDN Backup

The optional ISDN Backup function for MAGIC AC1 XIP enables an automatic Backup connection via ISDN in case of failure. Two versions are configurable:

- The ISDN Backup is activated by an external TTL alarm signal.
- Primary and ISDN Backup path are realised with one system. In case of failure of the primary path (IP or X.21) the ISDN Backup connection is established automatically.

(You will find further details under ”IP Audio transmission with automatic ISDN Backup” on Page 18)

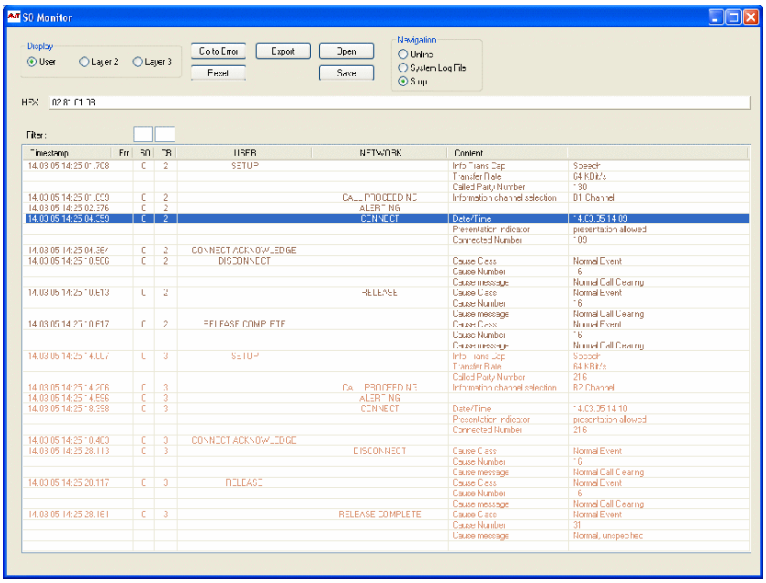


Software Options

ISDN Monitoring

For the MAGIC Audio Codecs an optional ISDN Monitoring Software is obtainable as extension of the standard software.

With the Monitoring function the D channel protocol between a MAGIC system and an ISDN switch can be recorded and stored in the system as a log file. Later the log file, that provides information about errors related to the ISDN connection, can be evaluated by a PC or analysed online. The data can be displayed in the User mode which presents it as an overview list or in the Expert mode which provides a detailed list for more experienced users. The ISDN Monitoring function can be applied locally and remotely using a PC with an ISDN interface card. With the ISDN Monitoring function a quick and easy on-the-spot troubleshooting can be real.



The option ISDN Monitoring is **only** available in combination with the Software Upgrade Kit (ID: 430359).

Remote Control Software

The Remote Control function allows control and configuration of the remote system in the same way as a local connection via LAN. All you need is a PC with an ISDN interface card and the system software. After establishing an ISDN connection you have total access to the remote system with your PC from all over the world. This is very helpful for the support of less experienced colleagues. Of course, you also have complete access to the ISDN Monitoring function. With a permission it is also possible for the technical support to enter the system in order to assist. Saving the system from unauthorised access a password protection can be activated or an access only can be allowed from certain telephone numbers which are stored in the system.

Licensing for Remote Control Software

For each MAGIC DC7 XIP, MAGIC AC1 XIP, MAGIC DC7 XIP RM and MAGIC AC1 XIP RM Audio product a separate licence is necessary. However, with one licence all systems of the same product type can be locally and remotely controlled by a PC. Since the licence is stored in a USB dongle, a free USB port on the PC must be available.

Software Options

All options marked with this symbol are included in the Software Upgrade Kit!

Software Upgrade Kit for MAGIC AC1 XIP

The Software Upgrade Kit for MAGIC AC1 XIP and MAGIC AC1 XIP RM contains all relevant options at a competitive price.

The Software Upgrade Kit includes the following functions:

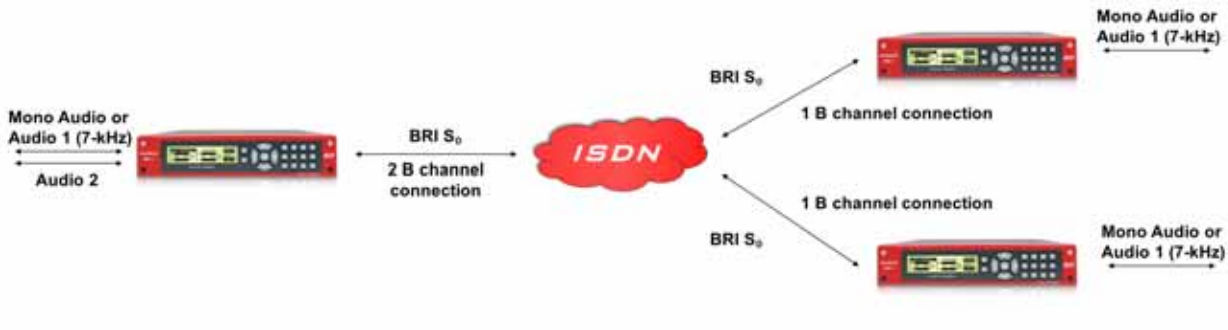
- ISO / MPEG Layer 2 / Layer 3 Upgrade[1]
- AES / EBU Interface Licence
- Exclusively with the Kit: SNMP
- Exclusively with the Kit: Mixer Tool Software Plug-In
- Exclusively with the Kit: ISDN Monitor Plug-In

[1]Depending on the algorithm which is enabled in the basic system.

Applications

Audio distribution with MAGIC DC7 XIP/AC1 XIP

The MAGIC DC7 XIP/AC1 XIP Audio Codecs can dial up two ISDN connections with different locations. Each connection is established with one B channel. Using MAGIC AC1 XIP a common ISO/MPEG Mono signal can be distributed to both locations. With MAGIC DC7 XIP as well as with MAGIC AC1 XIP two different Audio signals with 7-kHz can be transmitted.



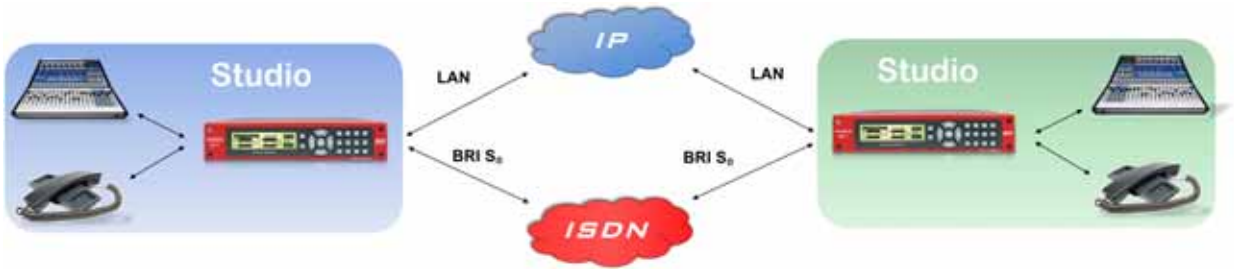
Reporting via ISDN with MAGIC AC1 XIP

With the MAGIC AC1 XIP Audio Codec live reporting can be realised easily and without much additional equipment. The reporter just connects a notebook and a headset to the MAGIC AC1 XIP Audio Codec and with the optional mixing function the headset signal, the audio output signals and the transmit signals can be flexibly mixed and controlled. After the ISDN connection is established, the reporter can communicate via the MAGIC AC1 XIP Audio Codec with the studio. Instead of using MAGIC AC1 XIP the reporter can also use the AVT's 7-kHz Software Codec. Besides, a normal telephone or a mobile phone can dial to the MAGIC AC1 XIP of the studio.

Applications

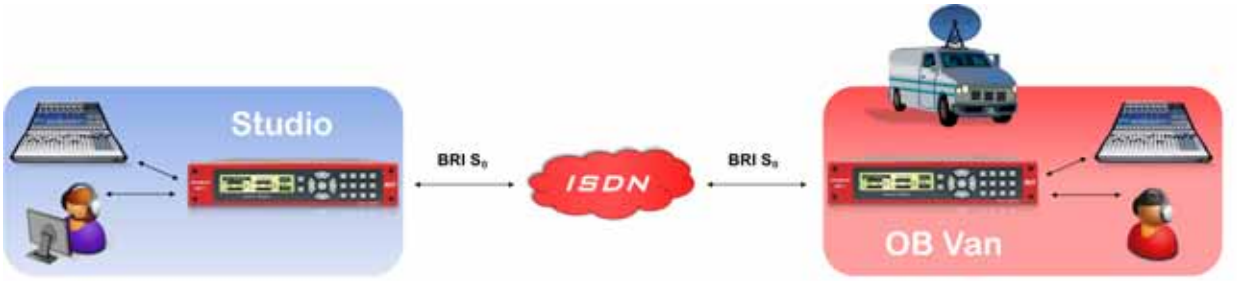
MAGIC DC7 XIP/AC1 XIP with telephone handset

Instead of a headset, a handset can also be linked to the MAGIC DC7 XIP /AC1 XIP. In this way, reporting over ISDN or IP becomes very simple. Via the handset the reporter can talk to the caller first and then switches to the Audio interface to transmit the Audio signal with the help of a single key. In the integrated telephone book of the system phone numbers, names and also corresponding transmission modes can be stored. Furthermore, it is possible to save up to ten entries on the 0...9 Quick Dial keys. The users just need to press a single key to establish a connection with a subscriber in the desired transmission mode.



MAGIC AC1 XIP for the OB Van

In case of outside broadcasting, the handset can be used like for commands. A high quality Mono Audio transmission can be made over the first B channel and the second one can be taken as a command channel with 7 kHz quality.



Applications

IP Audio transmission with automatic ISDN Backup

With the automatic ISDN Backup an Audio transmission via an IP Leased Line can be backed up. If one of the systems detects a failure of the IP connection, the Master system establishes the ISDN connection. During the Backup the system checks permanently, when the IP connection will be available again. If the IP connection is stable within the configured interval, the systems automatically switch back to the IP connection. The switch-over to the backup path requires only a few seconds. The switch-back to the main path usually last less than one second. Very important is the fact that different coding algorithms can be selected for the IP and the ISDN path. In this way, a transmission via IP with apt-X and a bit rate of 384-kbit/s could be realised. In case of failure, e.g. the ISO/MPEG Layer 3 algorithm, which provides an optimum quality for ISDN, can automatically be selected.

The configuration parameters allow an adjustment to various requirements. Additionally, a daily ISDN backup test can be activated to make sure that the ISDN network is working when it is necessary.

A similar function is available for a transmission over the X.21 interface - instead of the IP interface of the system.

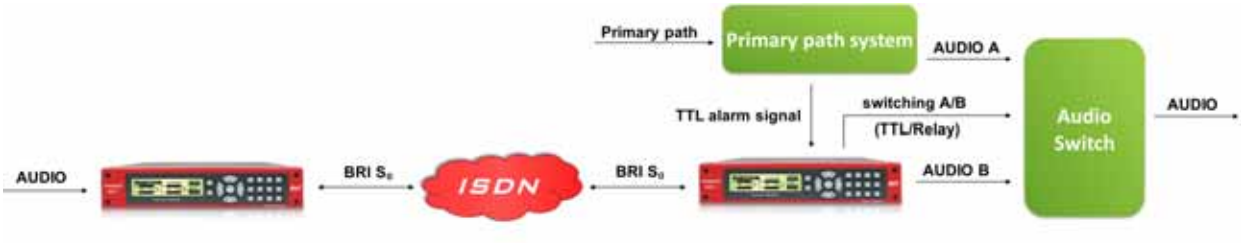
This function is only available for the MAGIC AC1 XIP Systems.

ISDN Backup via external alarm signal

If an existing primary path contribution (e.g. via satellite) is to be protected with an automatic ISDN Backup, MAGIC AC1 XIP can trigger the ISDN Backup by an external TTL alarm signal. As long as the alarm signal is pending, the backup path remains active.

With the configuration parameters all backup conditions can be adjusted to your requirements. For example, the maximum backup time and the time period during which the alarm signal is to be pending before the backup is triggered can be selected.

Via the TTL or relay output an external Audio switch can be controlled.



MAGIC Audio Contribution System

MAGIC AC1/AD1 XIP RM 2M system family for Studio to Transmitter links

General

The MAGIC Audio Contribution System is designed especially for the contribution of audio signals from the studio to transmitter locations (STL).

System features

- Transmission of 10 or more Stereo Audio signals inclusive data for e.g. RDS
- Main contribution via E1 (2-Mbit) or IP
- Backup contribution via ISDN, E1 or IP
- Centralised configuration, management and monitoring of whole network using a comfortable Windows PC software
- Integration in a network management systems via SNMP
- Audio monitoring of transmitter locations via 7-kHz audio backward channel
- Manual delay compensation in case of different latencies of the used networks

The system offers - depending on the version - a connection to E1, IP- and ISDN networks.

System variants

- ***MAGIC AC1 XIP RM 2M***

This version consists of an E1 Multiplexer, an ISO/MPEG Layer 2 Codec and a 7-kHz Decoder for Audio monitoring of the backward channel. Only limited by the channel capacity of the E1 line the system can transmit any number of Stereo Audio signals. Further programmes can be added by additional Audio Codecs (MAGIC AC1 XIP RM) which are linked to the E1 Multiplexer via IP. The E1 and the IP interface can be configured as main or backup path according the technical requirements. Note that this system does not offer an ISDN backup.

A second LAN interface is optional available.

- ***MAGIC AD1 XIP RM 2M***

The pure ISO/MPEG Layer 2 Decoder version with E1 Multiplexer contains also a 7-kHz Audio Encoder for the transmission of the monitoring backward channel. The E1, IP and ISDN interface can be configured as main or backup path according the technical requirements.

A second LAN interface is optional available.

- ***MAGIC AC1 XIP RM CS***

Beside the ISO/MPEG Layer 2 Codec the system has also an integrated 7-kHz Audio Decoder for the monitoring of the backward channel. The IP and ISDN interface can be configured as main or backup path according the technical requirements.

A second LAN interface is optional available.

- ***MAGIC AD1 XIP RM CS***

This version offers an ISO/MPEG Layer 2 Decoder, an IP- and ISDN interface in addition to a 7-kHz Audio Encoder for the transmission of the monitoring backward channel. The IP and ISDN interface can be configured as main or backup path according the technical requirements.

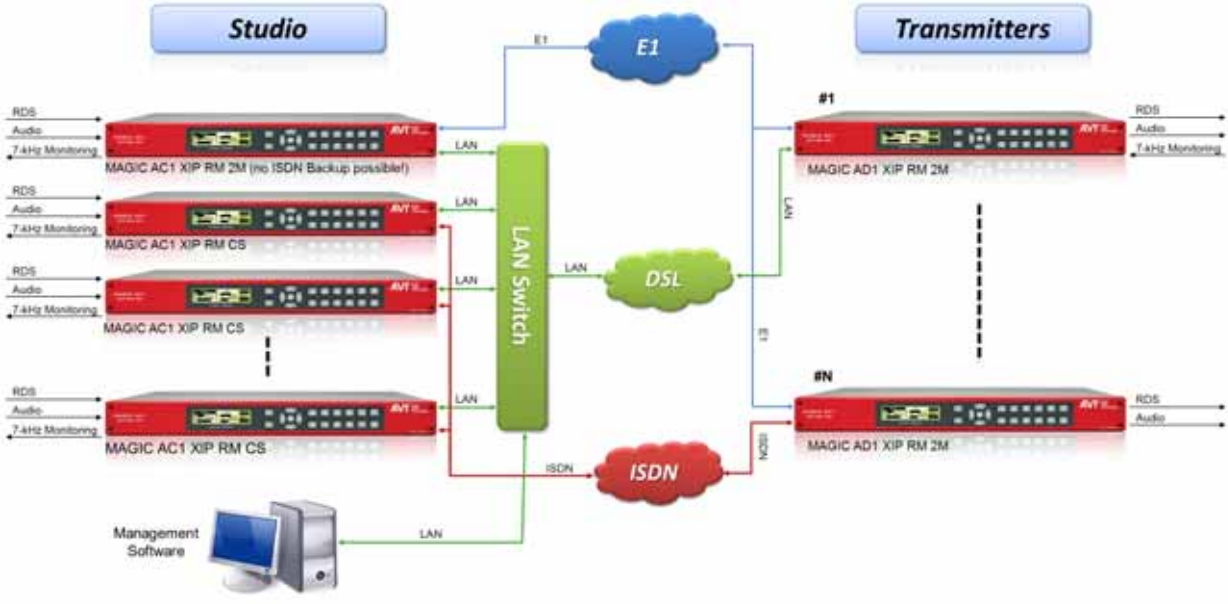
A second LAN interface is optional available.

System management

The Management Software allows a central configuration, management and monitoring of up to 40 Encoders and Decoders in total which are installed in the contribution network at the same time.

The software is multi-user capable, so that a simultaneous operation from different locations with different access rights is possible.

The integrated SNMP agent in each system allows an easy integration in already existing network management systems.



Application

The block diagram shows the transmission of multiple Stereo Audio signals plus RDS data via the main contribution path E1 to different transmitter locations.

Depending on the available backup network on the transmitter site either ISDN or LAN can be used.

A monitoring of the transmitter output signal can be fed into the integrated 7-kHz Encoder, which requires a LAN connection between the studio and transmitter site.

The configuration and monitoring is possible from one or more locations.

The LAN interface supports unicast, simulcast (simultaneous distribution of an identical signal of up to five transmitter sites) as well as multicast.

Technical Data

	MAGIC DC7 XIP	MAGIC AC1 XIP	MAGIC DC7 XIP RM	MAGIC AC1 XIP RM
Line interfaces	1 x ISDN S_0 BRI (2 B channels) X.21 LAN ISDN+SIP	1 x ISDN S_0 BRI (2 B channels) X.21 LAN ISDN+SIP	1 x ISDN S_0 BRI (2 B channels) X.21 LAN ISDN+SIP	1 x ISDN S_0 BRI (2 B channels) X.21 LAN ISDN+SIP
Audio interfaces	2 x Analogue Digital AES3 Headset/Microphone	Analogue Stereo Digital AES3 Headset/Microphone	2 x Analogue Digital AES3 Headset/Microphone	Analogue Stereo Digital AES3 Headset/Microphone
Control interfaces	RS232 GPIO (6 x TTL, 2 x Relays) LAN	RS232 GPIO (6 x TTL, 2 x Relays) LAN	RS232 GPIO (6 x TTL 2 x Relays) LAN optional: LAN2	RS232 GPIO (6 x TTL, 2 x Relays) LAN optional: LAN2
Coding algorithms	G.711 G.722	G.711 G.722 MPEG Layer 2 MPEG Layer 3 AAC-LD Standard apt-X Enhanced apt-X PCM	G.711 G.722	G.711 G.722 MPEG Layer 2 MPEG Layer 3 AAC-LD Standard apt-X Enhanced apt-X PCM
Multiplexer	J.52 SRT/G.722 N/ACIP TECH3326	J.52 SRT/G.722 MusicTaxi/ Layer 3 (2 B channels) Telos/Layer 3 (1 B channel) Telos/Layer 2 (2 B channels) CCS/Layer 2 (2 B channels) N/ACIP TECH3326	J.52 SRT/G.722 N/ACIP TECH3326	J.52 SRT/G.722 MusicTaxi/ Layer 3 (2 B channels) Telos/Layer 3 (1 B channel) Telos/Layer 2 (2 B channels) CCS/Layer 2 (2 B channels) N/ACIP TECH3326
Dimensions	1/2 x 19", 1U	1/2 x 19", 1U	19", 1U	19", 1U
Power Supply	12V external power supply	12V external power supply	230V integrated power supply	230V integrated power supply

Technical Data

	MAGIC AC1 XIP RM 2M	MAGIC AD1 XIP RM 2M	MAGIC AC1 XIP RM CS	MAGIC AD1 XIP RM CS
Line interfaces	E1 (G.703/G.704) 1 x ISDN S_0 BRI LAN	E1 (G.703/G.704) 1 x ISDN S_0 BRI LAN	1 x ISDN S_0 BRI LAN	1 x ISDN S_0 BRI LAN
Audio interfaces	Analogue Stereo Digital AES3 Headset/Microphone	Analogue Stereo Digital AES3 Headset/Microphone	Analogue Stereo Digital AES3 Headset/Microphone	Analogue Stereo Digital AES3 Headset/Microphone
Control interfaces	GPIO (6 x TTL, 2 x Relays) LAN LAN2 (optional)	GPIO (6 x TTL, 2 x Relays) LAN LAN2 (optional)	GPIO (6 x TTL 2 x Relays) LAN LAN2 (optional)	GPIO (6 x TTL, 2 x Relays) LAN LAN2 (optional)
Coding algorithms	G.722 MPEG Layer 2 MPEG Layer 3 (optional)	G.722 MPEG Layer 2 MPEG Layer 3 (optional)	G.722 MPEG Layer 2 MPEG Layer 3 (optional)	G.722 MPEG Layer 2 MPEG Layer 3 (optional)
Multiplexer	G.704 proprietary	G.704 proprietary	proprietary	proprietary
Dimensions	19", 1U	19", 1U	19", 1U	19", 1U
Power Supply	230V integrated power supply	230V integrated power supply	230V integrated power supply	230V integrated power supply

Ordering Information

MAGIC DC7 XIP

MAGIC DC7 XIP Audio Codec	800214
Option: AES/EBU Interface	430230
MAGIC Keypad Basic	800210
MAGIC Telephone Handset/Handset Rest	800235
MAGIC Audio Codec Dual 19" Mounting Kit	800212
Take-Away-Kit	440136
Portable Case	490152
MAGIC Battery Pack	800270
MAGIC DC7/AC1 Remote Control	430199
Software Upgrade Kit	430359

MAGIC AC1 XIP

MAGIC AC1 XIP Audio Codec	800232
Option: AES/EBU Interface	430230
MAGIC Keypad Basic	800210
MAGIC Telephone Handset/Handset Rest	800235
MAGIC Audio Codec Dual 19" Mounting Kit	800212
Take-Away-Kit	440136
Portable Case	490152
MAGIC Battery Pack	800270
MAGIC DC7/AC1 Remote Control	430199
ISO/MPEG Layer 2 Upgrade	450305
ISO/MPEG Layer 3 Upgrade	450307
Standard apt-X Basic Channel Upgrade	450308
Standard apt-X Extension Channel Upgrade	450309
Enhanced apt-X Basic Channel Upgrade	450312
Enhanced apt-X Extension Channel Upgrade	450313
AAC-LD Upgrade	450306
ISDN-Backup Upgrade	338694
Software Upgrade Kit	430359

Ordering Information

MAGIC DC7 XIP RM

MAGIC DC7 XIP RM Audio Codec	800215
Option: AES/EBU Interface	430230
MAGIC Keypad Basic	800210
MAGIC Telephone Handset/Handset Rest	800235
LAN2 Adapter	800017
MAGIC DC7/AC1 Remote Control	430199
Software Upgrade Kit	430359

MAGIC AC1 XIP RM

MAGIC AC1 XIP RM Audio Codec	800234
Option: AES/EBU Interface	430230
MAGIC Keypad Basic	800210
MAGIC Telephone Handset/Handset Rest	800235
LAN2 Adapter	800017
MAGIC DC7/AC1 Remote Control	430199
ISO/MPEG Layer 2 Upgrade	450305
ISO/MPEG Layer 3 Upgrade	450307
Standard apt-X Basic Channel Upgrade	450308
Standard apt-X Extension Channel Upgrade	450309
Enhanced apt-X Basic Channel Upgrade	450312
Enhanced apt-X Extension Channel Upgrade	450313
AAC-LD Upgrade	450306
ISDN-Backup Upgrade	338694
Software Upgrade Kit	430359

MAGIC Audio Contribution System

MAGIC AC1 XIP RM 2M Multiplexer	800802
MAGIC AC1 XIP RM CS Audio Codec	800813
MAGIC AD1 XIP RM 2M Audio Decoder	800803
MAGIC AD1 XIP RM CS Audio Codec	800814
Management Software für E1 Systems	430364
ISO/MPEG Layer 3 Upgrade	450307

You can also place your order via our Webshop: www.avt-nbg.de/shop.